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AMENDMENTS TO THE DRAWINGS

New Figs. 1 and 5 are attached following page 14 of this paper.

Attachments: Replacement sheets (2)
Annotated sheets showing changes (2)

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REMARKS

This Amendment responds to the Office Action mailed June 12, 2006, in the above-identified application. Based on the foregoing amendments and the following comments, reconsideration and allowance of the application are respectfully requested.

Claims 1-17 are currently pending in the application. No amendments are proposed. Claims 1, 4, 9 and 13 are independent claims.

The Examiner has objected to the drawings because Fig. 5 should be designated by a legend such as prior art, because the drawings do not include reference signs mentioned in the description and because the drawings include a reference sign not mentioned in the description. Enclosed herewith are proposed amended drawings, with changes marked in red. In the amended drawings, Fig. 5 has been designated as prior art. Fig. 1 has been amended to show reference sign 38. Fig. 5 has been amended to show reference sign 236. Reference sign 50, shown in Fig. 1A, represents a heating element. The specification has been amended at page 6, line 31 to change "conduit 50" to "conduit 60," as illustrated in Fig. 3, thereby correcting an obvious error. Reference sign 60 is now mentioned in the description at page 6, line 31, and at page 7, line 3. Approval of the corrected drawings and the amendment to the specification is respectfully requested.

The Examiner has provisionally rejected claims 1-16 on the ground of non-statutory obviousness-type double patenting as unpatentable over claims 1-19 of co-pending application Serial No. 10/524,283, in view of U.S. Patent No. 6,014,892. A Terminal Disclaimer under 37 CFR §1.321(c) is enclosed to overcome the provisional obviousness-type double patenting rejection. Accordingly, withdrawal of the rejection is respectfully requested.

The Examiner has rejected claims 4, 5 and 8 under 35 U.S.C. §102(b) as anticipated by Baret et al. (US 6,014,892). Claims 1-3, 6, 7, 9, 10 and 12 are rejected under 35 U.S.C. §103(a) as unpatentable over Baret et al. in view of Bohm et al. (US 5,661,229). Claims 13-17 are

rejected under 35 U.S.C. §103(a) as unpatentable over Baret et al in view of Bohm et al. as applied to claim 3, further in view of Mahoney et al. (US 5,625,141). Claim 11 is indicated to be allowable if rewritten in independent form. The rejections are respectfully traversed.

Baret discloses a trace gas leak detector, as shown in Fig. 4, which includes a mass spectrometer 1, a secondary pump 2, a primary pump 3, an enclosure 16 and an intermediate volume 18. Inlet 6 is coupled from enclosure 16 through intermediate volume 18 and pipe 7 to the suction inlet of primary pump 3. A sampling member 11 is positioned between valve 8 and intermediate volume 18 and is connected via a duct 12 and a valve 15 to mass spectrometer 1.

As shown in Fig. 5, sampling member 11 may be an orifice in the wall of the pipe connected to intermediate volume 18. Sampling member 11 is stated to have low conductance so as to enable measurements to be performed even when the pressure in the pipe is equal to atmospheric pressure (col. 3, lines 12-20). The sampling member may be a calibrated orifice through the wall of the pipe, or it may be a porous membrane, or a film pressed against an orifice through the wall of the pipe and allowing the trace gas to diffuse through (col. 3, lines 21-26).

Bohm discloses a test gas detector of a different type which utilizes a diaphragm that can be a polymer or a thin heated quartz glass window (col. 2, lines 53-57). An ionization gauge detects helium that passes through the diaphragm.

Mahoney discloses a leak test system which includes a spectrometer tube, a diffusion pump, a forepump and a roughing pump (Fig. 1). The leak test system includes a non helium expansion leak detector 12 and a helium mass spectrometer leak detector 14 (col. 3, lines 31-33).

Claim 4 is directed to apparatus for leak detection comprising a first sealable chamber configured to receive a test piece containing a trace gas, a second sealable chamber, a first valve coupled between the first and second chambers, a leak detector including a test port and a vacuum pump, a second valve coupled between the second chamber and the test port of the leak detector, and a trace gas permeable member coupled in parallel with the second valve between

the second chamber and the test port of the leak detector. The trace gas permeable member allows the trace gas to pass and blocks other gases, liquids and particles.

The trace gas leak detector disclosed by Baret is very different from the apparatus for leak detection as defined by claim 4. In particular, Baret discloses a sampling member 11 that is a calibrated orifice through the wall of pipe 7A, as shown in Fig. 5. Baret states that sampling member 11 may also be a porous membrane, or a film pressed against an orifice through the wall of the pipe and allowing the tracer gas to diffuse through (col. 3, lines 21-26) Baret contains no disclosure whatever of a trace gas permeable member that allows the trace gas to pass and *blocks other gases*, as required by Applicant's claim 4. Based on Baret, a skilled person would assume that the disclosed orifice, porous membrane or film would pass all gases, absent a teaching to the contrary. In summary, it is submitted that Baret does not disclose or suggest a trace gas permeable member coupled between the test line and the inlet of the mass spectrometer, the trace gas permeable member allowing the trace gas to pass and *blocking other gases*, as required by Applicant's claim 4. For these reasons, claim 4 is clearly and patentably distinguished over Baret, and withdrawal of the rejection is respectfully requested.

Claims 5-8 depend from claim 4 and are patentable over Baret for at least the same reasons as claim 4.

Claim 1 is directed to apparatus for leak detection comprising a first sealable chamber configured to receive a test piece containing a trace gas, a second sealable chamber, a first valve coupled between the first and second chambers, a leak detector having a test port, the leak detector comprising an ion pump, a trace gas permeable member coupled between the second chamber and the test port of the leak detector, the trace gas permeable member allowing the trace gas to pass and blocking other gases, liquids and particles, a vacuum pump having an inlet, and a second valve coupled between the second chamber and the inlet of the vacuum pump.

The Examiner contends that it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system taught by Baret by replacing the mass

spectrometer with a vacuum type ionization gauge. Applicant respectfully disagrees. Baret states that an object of the disclosed invention is to solve a problem with a mass spectrometer type detector related to vacuum pumping the mass spectrometer and the part to be inspected (col. 1, line 64 to col. 2, line 3). Thus, Baret is specifically directed to an improved leak detector of the type which includes a mass spectrometer. One of ordinary skill in the art reviewing Baret and Bohm would not be motivated to replace the mass spectrometer of Baret with the ionization gauge described by Bohm. The proposed combination would eliminate the need for the invention disclosed by Baret. Baret is directed to an improved leak detector including a mass spectrometer, whereas Bohm is directed to a leak detector including an ionization gauge. For these reasons, claim 1 is clearly and patentably distinguished over Baret in view of Bohm, and withdrawal of the rejection is respectfully requested.

Claims 2 and 3 depend from claim 1 and are patentable over Baret in view of Bohm for at least the same reasons as claim 1.

Claim 9 is directed to a method for leak detection, comprising providing a first sealable chamber, a second sealable chamber and a first valve coupled between the first and second chambers, placing a test piece containing a trace gas in the first chamber with the first valve closed, vacuum pumping the second chamber with the first valve closed, opening the first valve, wherein gas in the first chamber expands into the second chamber, providing a trace gas permeable member coupled to the second chamber, the trace gas permeable member allowing the trace gas to pass and blocking other gases, liquids and particles, and detecting a leak in the test piece by sensing the trace gas that passed through the permeable member with an ion pump and monitoring ion pump current.

Claim 9 contains method limitations that parallel the apparatus limitations of claim 1. Claim 9 is patentable over Baret in view of Bohm for the reasons discussed above in connection with claim 1. In particular, Baret is directed to the problem of improving a leak detector of the type which includes a mass spectrometer. Therefore, one of ordinary skill in the art would not be

motivated to replace the mass spectrometer with the ionization gauge disclosed by Bohm. For these reasons and for the reasons discussed above in connection with claim 1, claim 9 is clearly and patentably distinguished over Baret in view of Bohm, and withdrawal of the rejection is respectfully requested.

Claims 10-12 depend from claim 9 and are patentable over Baret in view of Bohm for at least the same reasons as claims 1 and 9.

Claim 13 is directed to apparatus for leak detection comprising a first sealable chamber configured to receive a test piece containing a trace gas, a second sealable chamber, a first valve coupled between the first and second chambers, a first leak detector including a test port and a vacuum pump, a second valve coupled between the second chamber and the test port of the first leak detector, a second leak detector having a test port, the second leak detector comprising an ion pump, and a trace gas permeable member coupled between the second chamber and the test port of the second leak detector, the trace gas permeable member allowing the trace gas to pass and blocking other gases, liquids and particles.

The Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system taught in Baret with a second leak detector in order to reliably detect a very wide range of leak rates as taught by Mahoney. Applicant must respectfully disagree. Baret describes a leak detector that detects leaks over a wide range of leak rates. As described at col. 3, lines 32-52 of Baret, the disclosed leak detector operates over three different pressure ranges. Since the Baret system already purports to operate over a wide range of leak rates, one of ordinary skill in the art would not have been motivated by Bohm and Mahoney to provide a second leak detector comprising an ion pump in the leak detector disclosed by Baret. For these reasons, claim 13 is clearly and patentably distinguished over Baret in view of Bohm and Mahoney, and withdrawal of the rejection is respectfully requested.

Claims 14-17 depend from claim 13 and are patentable over Baret in view of Bohm and Mahoney for at least the same reasons as claim 13.

Based upon the above discussion, claims 1-17 are in condition for allowance.

CONCLUSION

A Notice of Allowance is respectfully requested. The Examiner is requested to call the undersigned at the telephone number listed below if this communication does not place the case in condition for allowance.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time. If there is any additional fee associated with this submission please charge them to the Deposit Account No. 50/0895.

Dated: September 12 , 2006

Bella Fishman

Bella Fishman

Agent for Applicants

Registration No. 37,485

Varian, Inc.
Legal Department
3120 Hansen Way, M/S D-102
Palo Alto, CA 94304
(650) 424-5086
bella.fishman@varianinc.com

ANNOTATED SHEET

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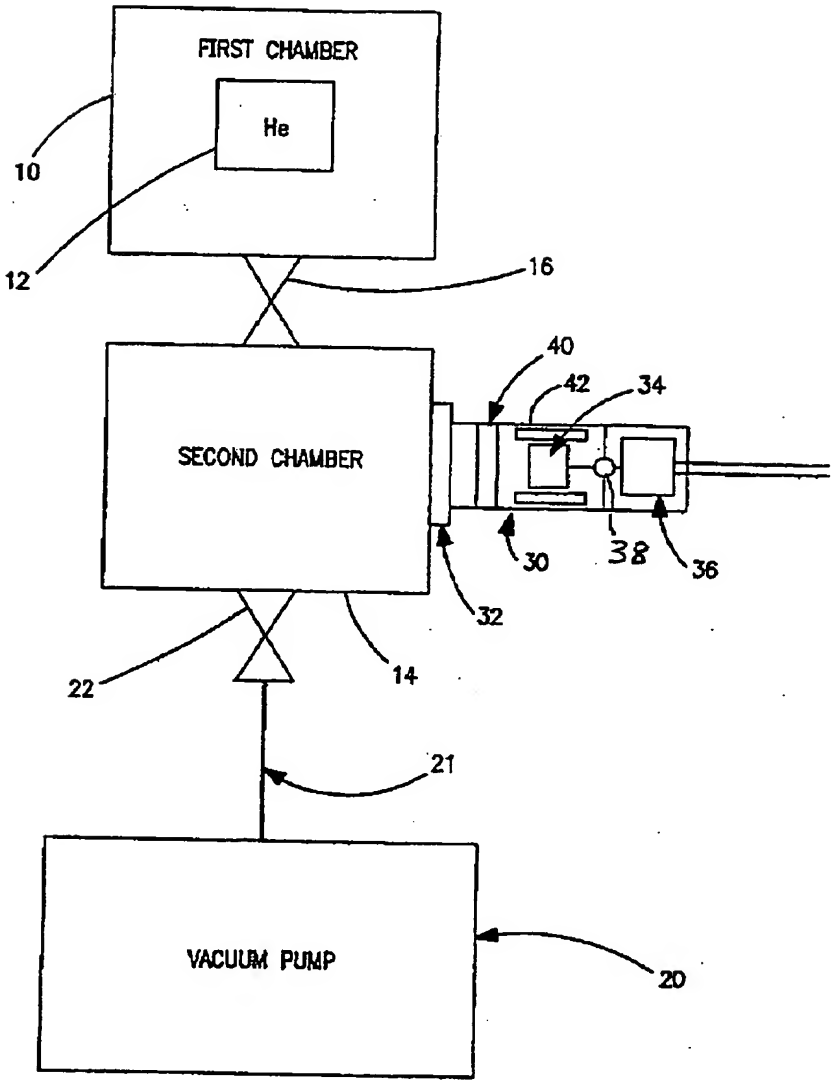

FIG. 1

ANNOTATED SHEET

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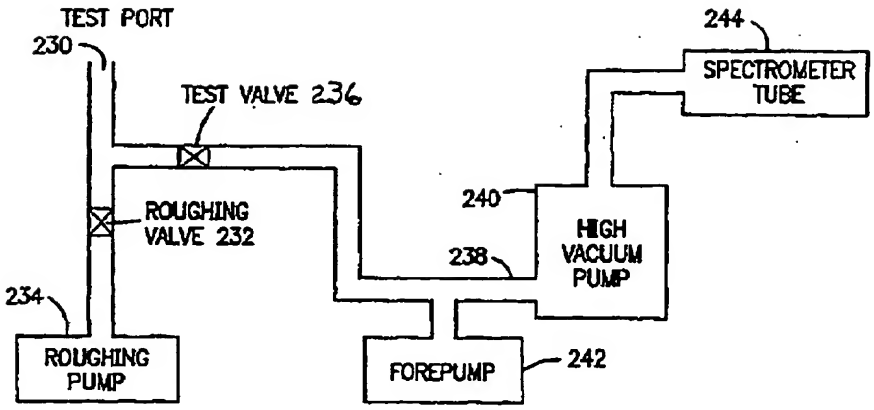

FIG. 5

PRIOR ART